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EXAMINER	
NGUYEN, LAM S	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

Office Action Summary	Application No.	Applicant(s)	
	10/615,370	SMITH ET AL.	
	Examiner	Art Unit	
	LAM S. NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-18,20-25,27,29 and 32-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21-25,27 and 29* is/are allowed.

6)☒ Claim(s) *1,3-6,9-18,20,32-35 and 37-42* is/are rejected.

7)☒ Claim(s) *7,8 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 3 and 5 are objected to because of the following informalities: The claims depend on claim 2 which has been canceled. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3-6, 9-10, 12-13, 15-18, 20, 32, 37, 39-40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6439708) in view of Wen (US 6428157) and Inui et al. (US 6264305).

Referring to claims 1, 15, 32, 37, 42:

Kato et al. disclose an inkjet printing system, comprising:

at least one ink printhead for depositing drops of a colored ink on a medium (*FIG. 5: four heads 1 contain nozzles 22, 23, 24, 25*) including a black printhead, a cyan printhead, a magenta printhead, and a yellow printhead (*FIG. 5 and column 19, line 55-65*) (**Referring to claim 12**);

a fixer printhead for depositing drops of a fixer onto the deposited drops of the colored ink (*FIG. 5: head 1b contains nozzles 21 for ejecting the second liquid; column 3, line 65-67: "depositing a second liquid containing a reactant, which forms coagulate upon contact*

with the ink composition, onto the recording medium, separately before or after the deposition of the ink composition or the first liquid");

an overcoat printhead for depositing drops of an overcoat onto the deposited drops of the colored ink (*FIG. 5: head 1d contain nozzles 26 for ejecting the first liquid; column 19, line 5-10 and Abstract: "after printing of an ink composition, the application of the first liquid to form a coating"*).

- Kato et al. does not disclose wherein the fixer and overcoat printheads are half-height relative to the at least one ink printhead.

Wen discloses a printing apparatus having at least one ink printhead (*FIG. 1, elements 31-34*) and a coating printhead (*FIG. 1, element 123*), wherein the coating printheads is lower in height relative to the at least one ink printhead. In addition, "*the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device*" (MPEP 2144.04 IV. A. Changes in Size/Proportion). In this case, since the different in height of the claimed fixer/overcoat printhead and the Wen's coating prinhead does not differ the operation of the printheads as claimed.

Thereofore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the fixer and overcoat printiheads disclosed by Kato et al. to be half-height or lower in height relative to the height of the ink printheads as suggested by Wen, since it has been held that discovering an optimum value of the height of the fixer and overcoat printheads involves only routine skill in the art.

- In addition, Kato also does not disclose wherein each printhead includes a number of ink ejection elements and wherein the ink ejection elements of each printhead are divided into M groups, wherein integer M > 1, and a processor programmed to generate swath data for the at least one ink printhead the fixer printhead and the overcoat printhead, to generate null swath data for at least two groups of ink printhead ink, and to generate null swath data for at least two groups of fixer and overcoat printhead ink ejection elements (**Referring to claims 5-6**), and wherein the at least one ink printhead includes a black printhead, a light cyan printhead, a light magenta printhead, a dark cyan printhead, a dark magenta printhead, and a yellow printhead (**Referring to claim 13**).

Inui et al. discloses a recording head having a plurality of printheads comprising a black printhead, a light cyan printhead, a light magenta printhead, a dark cyan printhead, a dark magenta printhead, a yellow printhead, and a fixer or overcoat printhead (*FIG. 2, element IH, IL, and IS*), each comprises a plurality of ejection elements for ejecting ink or a improving liquid (Abstract), wherein the plurality of ejection elements is divided into four groups having the same number of ejection elements (*FIG. 2: Each group has 32 nozzles*), and wherein three of the groups of each printhead receive null swath data during the printing operation of a scan or swath (*FIG. 6a-e*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing operation disclosed by Kato such as to generate null swath data for at least two groups of ejection elements as disclosed by Inui et al. The motivation for doing so would have been to ensure the coloring material does not smear into the other color

ink so the high tone gradation printing is possible as taught by Inui et al. (*column 17, lines 19-21*).

- **Kato et al. also discloses the following claimed invention:**

Referring to claims 3-4, 15, 32, and 42: further comprising a processor for generating and sending swath data to each ink, fixer, and overcoat printhead during printing (*FIG. 3: a corresponding processor or a computer controller with a memory for generating and sending swath data to print a ink swath 32 and a overcoat swath 31*).

Referring to claim 9: further comprising at least one additional fixer or overcoat printhead for bi-directional printing (*FIG. 6, element 40a-b, 41a-b and column 22, line 40-57*).

Referring to claim 10: wherein the drops of the fixer and the drops of the overcoat combine on the medium to form a protective coating for the drops of the colored ink (*column 3, line 60 to column 4, line 5: the first liquid and the second liquid are both deposited on the recording medium*).

Referring to claim 15: comprising a carriage assembly moveable in a scanning direction for carrying at least one inkjet printhead, a fixer printhead, and an overcoate printhead (*FIG. 1, element 4*).

Referring to claim 16: wherein the carriage assembly provides in-line arrangement of all printheads such that colored ink, the fixer, and the overcoat are deposited in substantially the same rows of a print medium as the carriage assembly moves in the scanning direction (*Fig. 6*).

Referring to claim 17: wherein the carriage assembly provides a staggered arrangement of the printheads such that the fixer and the overcoat are deposited in substantially different rows

of a print medium from the colored ink as the carriage assembly moves in the scanning direction (*Fig. 5*).

Referring to claim 18: wherein the fixer printhead is located at one end of the in-line arrangement of inkjet printheads, and the overcoat printhead is located at the opposite end of the in-line arrangement (*FIG. 6, elements 40a-b, 41a-b*).

Referring to claim 20: wherein the overcoat and fixer printheads are in a separate row from the ink printheads (*FIG. 5*).

Referring to claims 39-40: wherein the drops of the overcoat/fixer are deposited onto the deposited drops of the fixer/overcoat (*FIG. 6; column 3, line 65 to column 4, line 2; and column 22, line 36-40: The heads 41a-b eject the fixing liquid and the heads 40a-b eject the overcoating liquid. Because "only the nozzles located at the backmost row in the printing direction are operated" (column 22, line 50-53), the fixing liquid ejected by the head 41a or 41b is deposited before the overcoating liquid ejected by the head 40a or 40b*).

2. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6439708) in view of Wen (US 6428157) and Inui et al. (US 6264305), as applied to claim 1, and further in view of Yasunori (JP 11277724 A).

Kato et al., as modified, discloses the claimed invention as discussed above except means for delaying the depositing of the drops of the fixer and the drops of the overcoat until the drops of the colored ink have at least partially dried.

Yasunori discloses a color printer having a color printhead and a coating head, wherein after the printed matter becomes a semi-dried condition, a liquid type coating agent is coated on the printed surface in order to gain resistance to scratching (*Abstract*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing system disclosed by Kaito et al., as modified, such that including means for delaying the depositing of the drops of the fixer and the drops of the overcoat until the drops of the colored ink have at least partially dried as taught by Yasunori. The motivation of doing so is to obtain the printing with high resistance to scratching even on the medium W having no ink-absorption property by an ink jet method as taught by Yasunori (*Abstract*).

3. Claims 14, 38, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6439708) in view of Wen (US 6428157) and Inui et al. (US 6264305), as applied to claims 1 and 37, and further in view of Moriyama et al. (US 6412934).

Kato et al., as modified, discloses the claimed invention as discussed above except a controller for operating the printheads in a mode in which fixer and overcoat are not deposited if the media type is specialty or deposited if the media type is plain.

Moriyama et al. disclose an ink jet printing apparatus having color printheads and a quality improving liquid head to eject liquid to fix printed dots (*column 3, line 57*), wherein the printer operates in different modes in accordance to the printing medium (*FIG. 5*). If the printing medium is plain, the fixing liquid is deposited (*FIG. 5, steps 13-14*); otherwise, the deposition of fix liquid is omitted (*FIG. 5, step 12*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing system disclosed by Kaito et al., as modified, such that including a controller to operate the printer in different modes in accordance to printing medium to deposit or not deposit the coating and fix liquids as disclosed by Moriyama et al. The

motivation of doing so would have been to "provide a printing method in which an optimal process is carried out depending on the print medium type" so that a high quality image with the highest water resistance can be obtained as taught by Moriyama et al. (*column 3, lines 45-52*).

4. Claims 33, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6439708) in view of Wen (US 6428157), Inui et al. (US 6264305), and Kato et al. (US 6102537).

Kato et al. (708), in view of Wen and Inui et al., discloses the claimed invention as discussed in the first rejection except advancing the print medium by a distance half-height of the full-height ink printhead.

Kato et al. (537) discloses a process for printing on a printing medium (*FIG. 33, element 106*) from a printhead (*FIG. 33, element 103*) in which after the printhead completely prints a pass, the print medium is advanced by a distance half-height of the full-height of the printhead (*FIG. 33*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing process disclosed by Kaito et al. (708), in view of Wen and Inui et al., to advance the print medium by a distance half-height of the full-height ink printhead as disclosed by Kato et al. (537). The motivation of doing so would have been to be able to perform two-pass printing in both forward and reverse scannings as taught by Kato et al. (537) (*column 44, lines 60-65*).

5. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6439708) in view of Wen (US 6428157), Inui et al. (US 6264305), and Kato et al. (US 6102537), as applied to claim 33, and further in view of Allen (US 5635969).

Kato et al., as modified, discloses the claimed invention as discussed above except that wherein active swath data is sent to only subset of ink ejection elements in the ink printhead during the first pass, and only a subset of ink ejection elements in the fixer or overcoat heads during the second pass.

Allen discloses a printing apparatus having a plurality ink printheads (*FIG. 1, elements 12, 14, 16, 18*) and a print head for applying a colorless precursor (*FIG. 1, element 20*) on the printing medium prior to application of one or more colorants to the recording medium in order to prevent recording medium cockle and curl (*Abstract*), wherein the colorless precursor and the ink colorants are applying on the recording medium surface in separated swaths or passes to create a spacing or separation in time to avoid the mixing between the colorless precursor and the ink colorants (*column 5, lines 24-30*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing system disclosed by Kaito et al., as modified, such that sending swath data to the ink ejection elements in the printhead and the fixer and the overcoat head in different passes as disclosed by Allen. The motivation of doing so would have been to create a spacing or separation in time to avoid the mixing between the colorless precursor and the ink colorants as taught by Allen (*column 5, lines 10-30*).

Allowable Subject Matter

Claims 21-25, 27 and 29 are allowed and claims 7-8 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reasons for allowance of the claims were indicated in the previous office action mailed on 07/19/2005.

Response to Arguments

Applicant's arguments with respect to claims 1, 15, 32-33, 37, and 42 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
11/06/2005

HAI PHAM
PRIMARY EXAMINER